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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,450	02/11/2002	Maurice McGlashan-Powell	YOR920020009US1	4456
24299	7590	01/07/2004	EXAMINER	
George Sai-Halasz 145 Fernwood Dr. Greenwich, RI 02818				ROJAS, OMAR R
		ART UNIT		PAPER NUMBER
		2874		

DATE MAILED: 01/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/073,450	MCGLASHAN-POWELL ET AL.	
Examiner	Art Unit	Initials	
Omar Rojas	2874	UW	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 13 October 2003.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-5, 12-16, 21-24, 26, 28, 31-35, 37, and 43-61 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) 47-61 is/are allowed.

6)  Claim(s) 1,12-16,21-24,28,29,31-33,37 and 43-46 is/are rejected.

7)  Claim(s) 2-5,7,8,26,34 and 35 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 11 February 2002 is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

13)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a)  The translation of the foreign language provisional application has been received.

14)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)      4)  Interview Summary (PTO-413) Paper No(s). \_\_\_\_ .  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)      5)  Notice of Informal Patent Application (PTO-152)  
3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ .      6)  Other: \_\_\_\_ .

## DETAILED ACTION

### ***Response to Amendment***

1. With regards to the amendment filed on October 13, 2003, all the requested changes to the claims have been entered.

### ***Response to Arguments***

2. Applicant's arguments with respect to the claims rejected in a previous Office action have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Objections***

3. Claims 21 and 47 are objected to because of the following informalities: Claims 21 and 47 appear to be Jepson-type claims. Therefore, the claims should contain the phrase "*wherein the improvement comprises*." See 37 CFR 1.75(e). Appropriate correction is required.

4. Claims 47 and 60 are objected to because of the following informalities: In claims 47 and 60, the word "**trough**" should read as "**through**". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. **Claim 1 and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2002/0131171 to Hung.**

Regarding claim 1, Hung discloses a router for polarized light (see Fig. 2) comprising: an optical waveguide 201/203; a magneto optic rotator ("MOR") 205/206;

and a polarization beam splitter (“PBS”) 215/217; wherein said PBS may be integrated along with the waveguide on the same substrate.

Thus, Hung differs from claim 1 in that Hung does not expressly disclose that the PBS is seamlessly integrated.

However, Hung already teaches that the PBS may be integrated with the waveguide on the same substrate. See Hung at section [0015]. Thus, it would be an obvious design choice to make the PBS of Hung seamlessly integrated into the waveguide(s).

Therefore, it would have been obvious to one of ordinary skill at the time of the claimed invention to obtain the invention specified by claim 1 in view of Hung.

Regarding claims 12-15, the Examiner incorporates herein the previous remarks concerning Hung and claim 1.

Thus, Hung further differs from claims 12-15 in that Hung does not expressly recite using the different types of PBS devices recited by claims 12-15.

However, the Applicant(s) have not disclosed a perceived criticality to the use of the recited PBS devices of claims 12-15. Furthermore, as indicated with regards to claim 1, seamlessly integrating the PBS into the waveguide would have been an obvious design choice in view of Hung. Therefore, replacing the PBS of Hung with any of the recited PBS devices of claims 12-15 would appear to be a simple substitution of the PBS already disclosed by Hung.

Therefore, it would have also been obvious to one of ordinary skill at the time of the claimed invention to obtain the invention specified by claims 12-15 in view of Hung.

Regarding claim 16, the MOR of Hung as well as the PBS may also be integrated with the waveguide. Such integration would essentially make the MOR a segment of the waveguide (i.e., part of the same substrate). As indicated with regards to claim 1 making the PBS seamless with the waveguide would have been an obvious design choice. Thus, the method of claim 16 would also appear to be obvious in view of Hung.

**7. Claims 21-24, 28-29, 31-33, 37 and 43-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,726,788 to Fee et al. (“Fee”), and further in view of Hung as applied to claims 1 and 12-16 above.**

Fee discloses an optical backplane (Fig. 3, 308) comprising a network of optical waveguides (Fig. 4B, 403-406); routers (Fig. 4C, 410); and optical devices (Fig. 4B, 408) for connecting processing units (312, 302) to said network (403-406). See col. 5, II. 12-66.

Regarding claims 21, 32, and 37, Fee differs in that Fee does not expressly disclose that his routers (410) and optical devices (408) comprise: an MOR and PBS seamlessly integrated into the waveguide as specified by claim 21.

However, as previously discussed, Hung discloses the use of routers comprising MOR and PBS coupling optics for polarized light. See the previous remarks under section 6. As previously indicated, seamlessly integrating the PBS into the waveguide of Hung would have been an obvious design choice.

Furthermore, as stated by Fee, “[the] basic unit of the optical switch may employ...any other technology known to people skilled in the art.” Id. at col. 5, II. 22-24.

Because the routers of Hung are “[o]ptical non-reciprocal phase shifters [that] are useful in a variety of applications including telecommunications,” the ordinary skilled artisan would have desired to use them in the invention of Fee for phase shifting purposes. See Hung at section [0002].

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to obtain the invention specified by claims 21, 25, 30, 32, and 37.

With regards to claims 22-24, the Examiner incorporates herein the previous remarks concerning Fee and Hung which show the limitations of claim 21 to have been obvious.

Thus, Fee in view of Hung further differs from claims 22-24, in that the use of planar, strip, or cylindrical waveguides is not expressly discussed.

However, the Applicant(s) have not set forth a perceived criticality for the use of planar, strip, or cylindrical waveguides. Furthermore, such waveguide types were well known in the art at the time of the claimed invention. It is also inherent that Fee in view of Hung must use at least one type of the recited optical waveguides. For at least these reasons, the use of planar, strip, or cylindrical waveguides would have been an obvious design choice in Fee in view of Hung.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to modify Fee in view of Hung to obtain the invention specified by claims 22-24.

With regards to claims 28-29, the Applicant(s) are further claiming the use of a well-known and conventional type of optical waveguide without a perceived criticality. Although not expressly disclosed by Fee in view of Hung, the use of an optical waveguide having a doped silicon oxide layer, etc., as recited by claims 28-29 would have been an obvious design choice.

Therefore, it would have been obvious to one of ordinary skill at the time of the claimed invention to obtain the invention specified by claim also been obvious to one of ordinary skill at the time of the claimed invention to modify Fee in view of Hung to obtain the invention specified by claims 28-29.

Regarding claims 31-33 and 43-45, the Examiner incorporates herein the previous remarks concerning claim 21.

Thus, Fee in view of Hung further differs from claims 31-33 and 43-45 in that Hung does not expressly recite using the different types of PBS devices recited by claims 31-33.

However, the Applicant(s) have not disclosed a perceived criticality to the use of the recited PBS devices of claims 31-33 and 43-45. Furthermore, as indicated with regards to claim 1, seamlessly integrating the PBS into the waveguide would have been an obvious design choice in view of Hung. Therefore, replacing the PBS of Hung with any of the recited PBS devices of claims 31-33 and 43-45 would appear to be a simple substitution of the PBS already disclosed by Hung.

Therefore, it would have also been obvious to one of ordinary skill at the time of the claimed invention to obtain the invention specified by claims 31-33 and 43-45 in view of Fee in view of Hung.

Regarding claim 46, the MOR of Hung as well as the PBS may also be integrated with the waveguide. Such integration would essentially make the MOR seamlessly mesh with the waveguide (i.e., part of the same substrate). As indicated with regards to claim 1 making the PBS seamless with the waveguide would have been an obvious design choice. Thus, the method of claim 46 would also appear to be obvious in view of Fee in view of Hung.

***Allowable Subject Matter***

8. Claims 47-61 are allowed.
9. Claims 2-5, 7-8, 26, and 34-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not appear to disclose or suggest an method or device having all the recited features, in particular, an MOR comprising first and section sections having the functionality specified by claims 2-5, 7-8, 26, 34-35 and 47-61.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Omar Rojas whose telephone number is (703) 305-8528

and whose e-mail address is *omar.rojas@uspto.gov*. The examiner can normally be reached on Monday-Friday (7:00AM-3:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hemang Sanghavi, can be reached on (703) 305-3484. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9318 for regular communications. The fax phone number for After Final communications is (703) 872-9319. The examiner's personal work fax number is (703) 746-4751.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Omar Rojas  
Patent Examiner  
Art Unit 2874

or  
December 29, 2003



AKHMED ENAYET ULLAH  
PRIMARY EXAMINER